

**Application for Renewal of NPDES Permit No. IN0000108
BP Whiting Refinery**

Submitted to:
**Indiana Department of Environmental Management
Office of Water Quality
Indianapolis, IN**

Prepared for:
**BP Products North America, Inc.
Whiting, Indiana**

Prepared by:
**ENVIRON International Corporation
Denver, Colorado**

Date:
February 2012

**BP PRODUCTS NORTH AMERICA INC. – WHITING REFINERY
NPDES PERMIT RENEWAL APPLICATION**

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**BP Products North America, Inc. – Whiting Refinery
List of Potentially Affected Persons**

65-42 PS
Colleen Aguirre
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**BP Products North America, Inc. – Whiting Refinery
List of Potentially Affected Persons**

65-42-PS

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65-42-PS

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65-42 PS

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65-42-PS

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65-42 PS

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BP Products North America, Inc. – Whiting Refinery
List of Potentially Affected Persons

65-42-PS

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 Whiting, In 46394

65-42-PS

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65-42-PS

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65-42-PS

John Haluska
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**BP Products North America, Inc. – Whiting Refinery
List of Potentially Affected Persons**

65-42-PS
Hammond Filtration Plant
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65-42 PS
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Griffith, In 46319

65-42-PS
Irene Jackim
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Hammond, In 46327

65-42-PS
Lee Jackson
6405 Olcott
Hammond, In 46320

65-42-PS
Mark Kozak
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**BP Products North America, Inc. – Whiting Refinery
List of Potentially Affected Persons**

65-42 PS
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65-42-PS
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Enviro. Chairman
Northwest Indiana Coalition
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Hammond, In 46324

65-42-PS
Sen. Frank Mrvan
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Hammond, In 46323

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Paul Myers, Executive Director
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Marktown Historic District
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65-42-PS
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Whiting, In 46394

65-42-PS
Praxair Gas Tech
4560 Kennedy Avenue
East Chicago, In 46312

65-42-PS
Violet Regan
1836 Sheridan Ave.
Whiting, In 46394

65-42-PS
Charlotte Reed
Save The Dunes Council
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Michigan City, In 46360

65-42-PS
Safety-Kleen Oil Recovery
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East Chicago, In 46312

**BP Products North America, Inc. – Whiting Refinery
List of Potentially Affected Persons**

65-42-PS
Sandra Scalp
2804 New York
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65-42 PS
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Lake County 2nd District Commissioner
County Government Center
3rd Floor Building "A"
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Crown Point, In 46307

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Hoosier Environmental Council
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65-42-PS
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Whiting, In 46394

65-42-PS
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65-42-PS
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65-42-PS
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Lorraine Stasek
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65-42 PS
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**BP Products North America, Inc. – Whiting Refinery
List of Potentially Affected Persons**

65-42 PS
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Stewyt-623@Wowway.Com

65-42-PS
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65-42-PS
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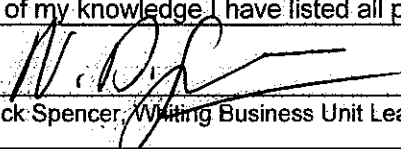
65-42-PS
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65-42 PS
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65-42-PS
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Hammond, In 46320

II. Please complete this form by signing the following statement.

I certify to the best of my knowledge I have listed all potentially affected parties, as defined by IC 4-21.5.		
Signature: 		
Printed name: Nick Spencer, Whiting Business Unit Leader	Date: 1/31/12	
Facility name: BP Products North America Inc. - Whiting Refinery		
Facility address: 2815 Indianapolis Boulevard		
Facility city: Whiting	Facility state: IN	ZIP code: 46394

III. Type of Action (check one)

- ☒ NPDES Permit-327 IAC 5
☐ Pretreatment Permit -327 IAC 5
☐ Construction Permit-327 IAC 3

A \$50.00 fee is required for a New permit, a Renewal or a Modification; if this is a renewal or modification request, include NPDES permit No. on check and return to:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Cashiers Office - Mail Code 50-10C
100 North Senate Avenue
Indianapolis, IN 46204-2251

If No Fee Is Required (Fee has previously been paid), Return To:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Office of Water Quality - Mail Code 65-42
Room N1255
Permits Branch
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

EXECUTIVE SUMMARY

National Pollutant Discharge Elimination System

Permit No. IN0000108

**BP Products North America Inc.
Whiting Refinery
Whiting, Indiana**

February 1, 2012

INTRODUCTION

This Executive Summary and the attached documents constitute the BP Products North America Inc. - Whiting Refinery's (BP Whiting) NPDES Permit Renewal Application for NPDES Permit No. IN0000108 (the "existing permit"). The existing permit, issued June 21, 2007, authorizes BP Whiting to discharge treated process water, once-through cooling water, and stormwater from four point sources into the waters of the State of Indiana as described below.

This application contains the information required as part of the NPDES permitting process, including IDEM General Information Form, USEPA Form 2C, USEPA Form 2F, List of Potentially Affected Parties, and a summary of the analytical results of BP Whiting's effluent testing program.

BACKGROUND

BP Products North America Inc. owns and operates a petroleum refinery located on approximately 1,400 acres within the boundaries of Whiting, East Chicago, and Hammond, Indiana, near the southern tip of Lake Michigan. The refinery employs approximately 1,850 people and produces a variety of petroleum products, including gasoline of all grades, diesel fuel, heating fuel, jet fuel, asphalt, and petroleum coke. The refinery also produces petroleum intermediates.

BP Whiting discharges three types of wastewater: treated effluent; once-through non-contact cooling water; and stormwater. First, the refinery discharges, as a long-term average, 15.7 million gallons per day (mgd) of treated effluent through Outfall 005 into Lake Michigan. The treated effluent originates from water used in or received by the plant, recovered groundwater, and most of the stormwater from the site, all of which is treated in the refinery's wastewater treatment plant (WWTP) and discharged via a high rate multiport diffuser. Second, the refinery discharges, as a long-term average, 73.7 mgd of once-through non-contact cooling water through Outfall 002, also into Lake Michigan. Third, the refinery intermittently discharges the balance of its stormwater through Outfalls 003 and 004 into the Lake George Branch of the Indiana Harbor Ship Canal.

Prior to discharge through Outfall 005, the refinery's water is treated at an advanced biological WWTP, which occupies twenty acres and includes oil/water separators, equalization and surge tanks, dissolved air flotation (DAF), an activated biological plant, and final filtering processes. The treatment plant is operated 24-hours a day, 365 days per year, and is managed by over twenty employees, eight of whom are Indiana-certified wastewater treatment operators, and two of whom are Class D certified.

APPLICATION FORMS

This permit renewal application consists of the following four forms:

1. Form 1 - the general application that applies to all applicants (Indiana form)
2. Form 2C - applies to all existing industrial facilities with process wastewater (Federal form)
3. Form 2F - applies to stormwater discharges related to industrial activity (Federal form)
4. Identification of Potentially Affected Parties Form (IDEM form)

The application also contains supplemental information on BP Whiting's water and wastewater treatment additives and zebra mussel control program.

Form 1 contains general information concerning the location of BP Whiting and the activities that occur on site. Form 1 includes the name and address of the facility, contact information, a list of BP Whiting's existing environmental permits, and a brief statement describing activities at BP Whiting. Attached to Form 1 is a map showing the location of the facility and the location of each outfall.

Form 2C contains information specific to BP Whiting's process and non-contact once-through cooling water discharges (Outfalls 005 and 002). The information provided on Form 2C includes: the latitude and longitude of specific outfalls, BP Whiting's production activities and capacities, the individual sources of wastewater, the quantities and characteristics of the wastewater from each of the listed sources, and the treatment technologies associated with each source. Block flow diagrams of the wastewater treatment systems are also provided with this form.

Form 2F contains information specific to BP Whiting's stormwater discharges (Outfalls 003 and 004). Form 2F includes the latitude and longitude of each of the stormwater outfalls, the corresponding drainage area for each of the outfalls, a description of the stormwater control measures, storm event data, and results from sample analyses for each of the stormwater outfalls. BP Whiting's Spill Prevention, Control, and Countermeasures Plan, Facility Response Plan, and Storm Water Pollution Prevention Plan are referenced within Form 2F.

The Identification of Potentially Affected Parties Form contains a list of all persons that are believed to have an interest in this permit renewal or could be affected by this permit renewal, by law.

EFFLUENT CHARACTERIZATION

Section V of Form 2C and Section VII of Form 2F require the presentation of effluent characterization data (concentration and mass) for select constituents. As part of this characterization, a "Believed Absent and Believed Present" assessment for constituents is required in Form 2C Part V.B. BP Whiting used the following steps to determine whether a constituent would be "Believed Present" in Outfalls 005 and 002:

1. Is there a BP Whiting source of the constituent?
2. Is it anticipated that the constituent would not be removed or degraded by the wastewater treatment system?
3. Is the constituent detected at levels greater than the Lake Michigan intake levels?

If the answers to all three steps were "yes" (or a combination of "yes" and "not applicable"), then the constituent was considered to have the potential to be present in the discharge. Some of these "Believed Present" constituents, however, were not detected by analysis.

In regards to sampling and analyses, permit-required conditions were followed. Where no permit requirements were listed, sampling and analyses followed 40 CFR Part 136. Data are presented in Attachment 8 for Outfall 005 additional parameters, including, for

example, chloride, Total Dissolved Solids and specific metals. A summary of effluent characterization procedures is provided below:

Form 2C, Part V.A, V.B, and V.C

These forms present the monitoring data for Outfalls 005 and 002.

For parameters currently monitored under the NPDES permit:

- A 4-year DMR database (July 1, 2007 to June 30, 2011) was utilized for all DMR parameters except for mercury. The mercury database includes data collected from February 19, 2008 to December 1, 2011.
- A "j" flag was used to indicate that a maximum monthly average or long-term average concentration included results reported as non-detect (<MDL). The MDL value was substituted for the non-detect result to generate averages.
- For Outfall 005 temperature, summer was defined as July 1 through September 30 and winter was defined as October 1 through June 30.
- The number of analyses has been presented for both the daily values and the monthly average values.
- Maximum monthly values were presented only if there were more than two samples in the calendar month.
- Some parameters were monitored at Outfall 001 (i.e., July 1, 2007 to July 31, 2010 prior to installation of the multiport diffuser) which is the same treated process water as Outfall 005. Outfall 001 data have been integrated into the Outfall 005 database.
- Some data (concentrations) considered not representative of normal operating conditions have been removed as follows from the Outfall 005 DMR database as well as corresponding summary statistics:
 - Sep 13, 2008 to Sep 24, 2008: DMR cover letter describes 100yr 48hr storm which caused WWTP upset – all parameters removed.
 - Jul 25, 2010 to Jul 28, 2010: 25 yr storm event on 7/23 and 7/24 which overwhelmed WWTP – all parameters removed.
 - Apr 18, 2011 to Apr 30, 2011: unexpected loss of one clarifier Apr 18-30 and significant rain event caused exceedances on Apr 21-28 – all parameters removed.
 - Others as described in DMR cover letters: 7/14/08 pH, 8/6/08 COD, and 9/5/08 TSS.
- For Outfall 005, sulfide values reported on the DMRs as zero, were substituted with the Method Detection Limit of 0.01 mg/L for statistical calculations.
- For Outfall 002, TRC non-detect results were reported as < Method Detection Limit for 2007, 2008. These values have been changed to zero for calculating statistics (consistent with permit requirements).

For parameters not currently monitored under the NPDES permit:

- A sampling program for Outfalls 005 and 002 was conducted in March 2011. At least one sample was analyzed for required Form 2C parameters during this time period.

- A "<" flag indicated that a concentration result was less than the method detection limit (MDL) or reporting limit, consequently, the corresponding mass value was not quantifiable and was not calculated.

Form 2F Parts VII.A, VII.B, VII.C, and VII.D

These forms present the monitoring data for Outfalls 003 and 004.

For stormwater characterization:

- Outfalls 003 and 004 are controlled-valve discharges, hence stormwater samples were not necessarily collected during the first 30 minutes of the storm event, but were collected during the first 30 minutes of discharge release.
- A 4-year DMR database (July 1, 2007 to June 30, 2011) was utilized.
- A "j" flag was used to indicate that a long-term average included concentration results reported as non-detect (<MDL). The MDL value was substituted for the non-detect result to generate averages.
- Stormwater flow rates were either directly measured or determined via calculation (i.e., the time a valve was opened and closed was incorporated into a stormwater model that accounts for rainfall).

WHITING REFINERY MODERNIZATION PROJECT (WRMP) DESCRIPTION

During the term of the renewed permit, BP will continue the Whiting Refinery Modernization Project (WRMP), known (in part) in the existing permit as the Canadian Extra Heavy Crude Oil (CXHO) project. Construction is currently underway and is anticipated for completion around the end of 2013. Status of WRMP activities are as follows:

Refinery Process Units

New - #2 Coker: The existing coker (No. 11 B Pipe Still) will be shut down and replaced with a new coker (#2 Coker).

New - Enclosed Coke Handling System: The existing open coke yard will be shut down and replaced with a new enclosed coke handling system.

New - GOHT: A new Gas Oil Hydrotreating Unit (GOHT) will be installed to hydrotreat gas oil.

New - Cooling Towers: Two new cooling towers (Cooling Towers 7 & 8) will be installed to meet the cooling requirements for the WRMP.

New - Flares: Two new flare stacks will be installed in support of the WRMP.

Upgrade - No. 12 Pipestill: The existing No. 12 Pipestill (12PS) will be revamped to allow increased processing of heavy crude.

Upgrade - Sulfur Recovery Complex: Due to the higher sulfur content of the heavy crudes, additional lower sulfur fuels units will be installed.

Upgrade - Distillate Hydrotreating Unit: A new reactor and a new heater will be installed at the Distillate Hydrotreating Unit .

Upgrade - No. 11C Pipestill: Ultra-low NO_x burners will be installed on the 11C PS Heater H-200 to reduce NO_x emissions from this heater.

Upgrade - Aromatics Recovery Unit: Some minor modifications will be made at the ARU to process lighter feed.

Upgrade - No. 4 Ultraformer: Due to an increase in the naphtha feed rate to the existing 4UF, the front end reactor will be upgraded. .

Upgrade - Existing Cooling Towers: High efficiency liquid drift eliminators will be installed on the existing Cooling Towers 2, 3, and 4 to reduce particulate emissions.

Upgrade - Distillate Desulfurization Unit: Some minor modifications will be made to the Distillate Desulfurization Unit (DDU).

Upgrade - Vapor Recovery Unit: Several modifications will be made to the VRU 300 to process a larger amount of lighter naphtha feed with the WRMP.

Upgrade - Fuel Gas System: As part of the WRMP, enhancements will be made to the refinery's fuel gas system to achieve a future potential total reduced sulfur (TRS) content.

Upgrade - Blending Oil Unit: Modifications will be made to the Blending Oil Unit heater.

Upgrade - Fluid Catalytic Cracking Unit 600: Several modifications will be made on the FCU 600 unit to accommodate an increase in throughput.

Upgrade - Propylene Concentration Unit: Modifications and additions will be made to the PCU to produce more RGP (refinery grade propylene) and minimize the production of PGP (polymer grade propylene).

Shutdowns - BP will permanently shut down and remove from service a number of units as a result of the installation of new units and the modification of certain existing units comprising WRMP. The following existing units will be permanently shut down as part of WRMP:

- No. 11B Coker Heaters H-101, 102, 103, and 104
- Existing Coke Handling System
- Beavon-Stretford Tail Gas Unit
- SBS Tail Gas Unit
- SBS Cooling Tower

- SRU Incinerator
- No. 12 PS Heaters H-2, H-1AS/1AN, H-1CN, H-1B, H-1CX
- No. 4C Treating Plant
- No. 3 Ultraformer reformer section and heaters H-1, H-2 and F-7
- The 350 section of VRU 300
- No. 1 SPS Boilers

WWTP Units

New - Brine Treatment System: A new brine treatment system will be installed for treatment of the wastewater brine from the refinery's pipe still operations. The system is designed to separate the oily emulsified solids from the brine using new GLR microbubble technology. Chemistry is used to coagulate and flocculate the oil droplets to trap much of the solids into the oil phase. The GLR Gas Floatation Tanks (GFT) are designed to separate the oil (and consequently any solids entrained in the oil) and the water. The oil and solids that are created and separated by the brine treatment unit will be sent to the refinery solids handling system. The system will consist of four fixed-roof tanks to be located at the WWTP and two off-spec tanks which will be located in the refinery and equipped with external floating roofs.

New - Stormwater/Equalization Tank: A new wastewater storage tank (TK-5052) with a capacity of 11,676,000 gallons and equipped with an external floating roof has been installed to provide additional storage volume for stormwater surges and to provide additional equalization capacity. Extra surge capacity allows the WWTP to better respond to high stormwater flows such as those experienced during heavy rain events. The extra equalization capacity allows a better response to process upsets that may temporarily increase the TSS or total nitrogen in the influent flow to the WWTP. The new tank TK-5052 is equipped with foam chambers, a guided wave radar level transmitter, an oil skimmer, an automatic sample collection system, and a jet mixing system to prevent solids accumulation. Start up was completed December 2009 with a corresponding notice sent to IDEM for additional WWTP equipment installation.

New - Final Filters: The existing final filters at the WWTP will be replaced with new final filters with a capacity of 32.1 MGD. The new Final Filters are of the gravity mono/multimedia type, with two clusters of four filter cells each, totaling eight filter cells. Influent flow is gravity fed from the clarifiers and splits equally between the two filter clusters. Flow to each of the cells within a cluster is distributed evenly by means of adjustable inlet weirs. Flow from the bottom of each cell is directed to a dedicated effluent chamber with adjustable weirs. The water flows over the adjustable weirs to a common transfer pit. Filtered water from the common transfer pit is tied into the existing 42" effluent piping, and will flow to the interceptor box, and out to the lake via Outfall 005. During backwash operation, seven of the eight total cells continue to operate normally, with one cell being placed in backwash mode.

New/Upgrade - Dissolved Air Flotation (DAF): Under the proposed USEPA Consent Decree, BP will be required to complete construction and installation of a new DAF unit that will replace the existing DAF unit.

OTHER PERMIT RENEWAL ITEMS

1. On August 23, 2007, BP America committed to operating the Whiting refinery in compliance with the TSS and ammonia limitations contained in its 1990 NPDES permit, notwithstanding the revised limitations contained in the current permit, which were properly calculated under the effluent limitations guidelines set forth in 40 CFR 419.22(a), 419.23(a), and 419.24(a), and approved by IDEM in accordance with applicable antidegradation requirements. BP since has invested millions of dollars toward continued research and engineering to further reduce the levels of pollutants discharged from the facility, and remains committed to keeping TSS and ammonia loadings at or below the 1990 authorized levels. As a result, BP requests that IDEM revise the current TSS and ammonia loading limitations to reflect the values established in the 1990 permit.
2. BP Whiting requests the continuation of the Clean Water Act Section 316(a) variance as documented in Part III.A of the existing permit. Phase I of the Thermal Plume Study was completed on March 4, 2011. The Phase II Thermal Variance Study Plan was approved by IDEM July 8, 2011. Per Part III.A.3 of the existing permit, BP has 24 months from plan approval to complete the 316(a) variance/demonstration application.
3. BP Whiting requests that the zebra mussel control program in place be continued. This program has been revised to incorporate year-round chlorination to control zebra as well as quagga mussels as described in the supplemental information at the end of this application.
4. BP Whiting requests the continuation of the alternate mixing zone for the Outfall 005 high rate multiport diffuser, including the application of a 37.1:1 mixing ratio for water quality based effluent limit (WQBEL) development. Per part I.H.1 of the existing permit, BP submitted the diffuser operation and maintenance plan to IDEM (current revision = 8/22/2011). As stated in the existing permit Fact Sheet, BP requests the continuation of the provision to allow effluent bypass to Outfall 001 (shore line discharge) in an emergency or for diffuser maintenance with IDEM notification.
5. BP requests continuation of the 316(b) study approval given in Part III.B and Part I.F.4 of the existing permit.
6. BP requests that IDEM update descriptions to account for existing sources of offsite wastewater. Examples are Whiting Clean Energy, Praxair, Ineos, and Griffith LPG Cavern storage dewatering. In addition, all on site remediation groundwater is sent to the wastewater treatment facility. Further, consistent with 40 CFR 437.1 (b)(2)(b), offsite facilities (both BP and non-BP owned) such as pipelines and terminals may produce other wastewater from activities including tank inspections, hydrotesting of equipment, dewatering operations, equipment clean out from maintenance and turnaround activities, dewatering of equipment, and other wastewater, which may be sent to the BP wastewater treatment plant for oil recovery and wastewater treatment.

7. BP does not manufacture pesticides on site. However, pesticides are occasionally applied to refinery areas by a qualified contractor in accordance with FIFRA regulations. Outfall 005 effluent sampling resulted in no detections of pesticide constituents required in USEPA Form 2C.
8. BP requests the incorporation of a Streamlined Mercury Variance (SMV) in the renewed permit in accordance with the SMV application submitted to IDEM on 11/20/2010. The resulting draft permit modification to incorporate a SMV went to public notice on Nov 14, 2011. An update of the SMV effluent mercury database is provided in Table ES-1 of this application. These data are presented in lieu of mercury results reported in Form 2C Section V.C for Outfall 005.
9. BP is currently engaged in a 5-year compliance schedule for vanadium effluent limitations at Outfall 005 per Part I.E.2 of the existing permit. For the renewed permit, BP requests that IDEM incorporate the most recent available updated vanadium data to revise Tier II water quality criteria.
10. BP requests that the agency allow the option to re-route additional tank dike stormwater runoff into Outfalls 003 and 004. Stormwater would be moved from the following tank areas: (1) Indiana Tank Field; (2) South Tank Field; (3) South Tank Field Annex; (4) Stieglitz Park; and (5) Marine Dock. See Attachment 9 for tank field locations. At this time, BP does not envision having to add another outfall for stormwater; instead BP will build (or utilize existing) infrastructure and capacity to manage these sources subject to the current release operations at Outfall 003 and 004. BP does not anticipate significant changes in stormwater quality characteristics with the additional tank field sources. Additional details of the stormwater re-route project are given in Attachment 10.
11. BP requests the biological survey frequency given in Part I.H.2 of the existing permit be reduced from annually to the first, third, and fifth year of the renewed permit. The frequency may be increased if findings suggest significant changes in monitored biological/chemical characteristics. Annual biological surveys were conducted under the terms of the existing permit in July 2009 (pre-diffuser), August 2010 (post-diffuser), and July 2011. The data have shown that there have been no significant changes (relative to historic lake conditions) to the biotic community from year to year. The reduced monitoring frequency will be sufficient to identify trends in biological community structure and composition in future years.
12. BP requests that Outfall 005 sampling type for sulfide be revised to "grab" instead of the current "composite" requirement, such that preservation of the sample can be done in accordance with 40 CFR 136 Table E.
13. BP requests clarification on the definition of the monitoring frequency of "weekly" in Part I.A for the renewed permit. BP requests this interpretation be a working week of 7 days for Outfalls 005/002. For Outfalls 003/004 BP defines Monday through Sunday as the work week and Monday as the first day of the week.
14. BP requests that, in the renewed permit, IDEM change the language in the Outfall 003 and Outfall 004 descriptions from "non-process stormwater" to

"stormwater associated with industrial activity" from the J&L, Lake George, and tank dike areas of the refinery to maintain consistency with 40 CFR 122.26(b)(14) definition.

15. BP requests that the description of authorized wastewater sources to Outfall 005 be revised to acknowledge that the WWTP receives and treats wastewater from normal refinery operations including maintenance, turnaround activities, excavation dewatering, construction activities, tank cleaning, and temporary flows from upsets or downtime. Such temporary flows would include, as necessary, the re-treatment of off-spec WWTP effluent that has been temporarily stored in alternate storage locations via the firewater recycle system rather than discharged to Lake Michigan. The temporarily stored off-spec WWTP effluent would then be rerouted back through the WWTP for additional treatment and final discharge. In addition, it should be noted that the process sewers are part of the wastewater collection system.

TABLE ES-1. BP WHITING SUMMARY STATISTICS FOR VALID MERCURY DATA

Sample Date	Intake (ng/L)	Intake Duplicate (ng/L)	Intake Max (ng/L)	Outfall 001/005** (ng/L)	Outfall 001/005 Duplicate (ng/L)	Outfall 001/005 Max (ng/L)
02/19/08	5.07	---	5.07	---	---	NA
02/28/08	---	---	NA	15.4 E1	6.09 E1	15.4
02/29/08	1.17	0.54	1.17	13.6	---	13.6
03/20/08	1.15	---	1.15	10.0 E1	15.0 E1	15.0
06/19/08	0.763 E2	---	0.763	2.80 E1	2.96 E1	2.96
10/14/08	0.659	---	0.659	5.90	5.41	5.90
10/16/08	0.878	---	0.878	5.86	5.94	5.94
12/04/08	1.79	---	1.79	4.80	7.14	7.14
12/11/08	12.8 E1	---	12.8	8.00 E1	8.38 E1	8.38
12/18/08	<0.500 B	---	<0.500	5.62 B	5.31 B	5.62
01/08/09	<0.500	---	<0.500	4.62	5.31	5.31
02/05/09	0.49 J	---	0.49	4.65	5.18	5.18
02/13/09	2.7	---	2.7	5.40	6.51	6.51
02/19/09	1.09 B, E2	---	1.09	3.43 B, E1	3.61 B, E1	3.61
03/12/09	1.34	---	1.34	5.07	6.44	6.44
04/02/09	---	---	NA	2.54	2.56	2.56
04/09/09	---	---	NA	3.77	3.07	3.77
04/20/09	<0.500	<0.500	<0.500	2.40	1.88	2.40
04/22/09	<0.500	<0.500	<0.500	---	---	NA
05/07/09	<0.500	<0.500	<0.500	---	---	NA
05/14/09	<0.500	<0.500	<0.500	---	---	NA
05/21/09	<0.500	<0.500	<0.500	0.196 J	0.551	0.551
06/04/09	<0.500	<0.500	<0.500	7.41	7.04	7.41
06/12/09	<0.500	<0.500	<0.500	1.20	1.81	1.81
07/09/09	<0.500	<0.500	<0.500	5.76	7.67	7.67
07/16/09	<0.500	<0.500	<0.500	---	---	NA
08/06/09	<0.500	<0.500	<0.500	5.30	23.1	23.1
08/13/09	<0.500	<0.500	<0.500	2.58	4.20	4.20
09/03/09	<0.500	<0.500	<0.500	3.06	3.05	3.06
09/10/09	<0.500	<0.500	<0.500	2.74	2.70	2.74
10/01/09	<0.500	<0.500	<0.500	<1.00	<0.500	<1.00
10/12/09	<0.500	<0.500	<0.500	4.27	4.28	4.28
10/14/09	<0.500	<0.500	<0.500	2.19	2.17	2.19
10/16/09	0.333 J	0.216 J	0.333	2.31	2.28	2.31
10/21/09	<0.500	<0.500	<0.500	0.367 J	0.233 J	0.367
11/16/09	<0.500	<0.500	<0.500	12.7	4.58	12.7
11/18/09	0.544	0.541	0.544	2.87	7.52	7.52
11/20/09	<0.500	<0.500	<0.500	2.29	3.08	3.08
12/03/09	0.955	0.840	0.955	7.12	8.09	8.09
12/10/09	<0.500	<0.500	<0.500	12.4	19.9	19.9
01/07/10	<0.500	<0.500	<0.500	1.60	1.97 J, L	1.97
01/14/10	<0.500	<0.500	<0.500	6.21 *	4.96 *	6.21
02/04/10	<0.500	<0.500	<0.500	8.88	6.60	8.88
02/08/10	---	---	NA	3.86	<2.50 L	3.86
02/11/10	<0.500	<0.500	<0.500	11.9	11.1	11.9

TABLE ES-1. BP WHITING SUMMARY STATISTICS FOR VALID MERCURY DATA

Sample Date	Intake (ng/L)	Intake Duplicate (ng/L)	Intake Max (ng/L)	Outfall 001/005** (ng/L)	Outfall 001/005 Duplicate (ng/L)	Outfall 001/005 Max (ng/L)
03/04/10	<0.500	<0.500	< 0.500	3.06	3.86	3.86
03/10/10	---	---	NA	<2.50 L	<2.50 L	< 2.50
04/01/10	---	---	NA	<0.500	<0.500	< 0.500
04/19/10	---	---	NA	2.70 *	2.55 *	2.70
04/23/10	---	---	NA	2.56	1.16	2.56
06/03/10	---	---	NA	2.17	3.16	3.16
08/06/10	---	---	NA	7.41	10.3	10.3
08/12/10	---	---	NA	4.25	3.30	4.25
10/07/10	---	---	NA	10.3	12.0	12.0
10/13/10	---	---	NA	6.97	6.56	6.97
10/15/10	---	---	NA	9.45	9.40	9.45
12/02/10	---	---	NA	5.55	5.41	5.55
02/03/11	---	---	NA	5.36	5.82	5.82
02/10/11	---	---	NA	2.66	3.27	3.27
04/11/11	---	---	NA	7.18	7.23	7.23
04/13/11	---	---	NA	41.4 *	39.3 *	41.4
04/15/11	---	---	NA	13.9	12.7	13.9
06/02/11	---	---	NA	6.13	7.09	7.09
06/13/11	---	---	NA	4.75	5.88	5.88
08/02/11	---	---	NA	2.28	2.26	2.28
08/11/11	---	---	NA	6.18	6.17	6.18
10/10/11	---	---	NA	3.89	1.77	3.89
10/12/11	---	---	NA	5.17	6.6	6.6
10/14/11	---	---	NA	10.7	11.2	11.2
12/01/11	---	---	NA	29.4	23.8	29.4
Summary Statistics	Count		42	Count		65
	Average		1.08	Average		7.21
	Geomean		0.69	Geomean		5.08
	Standard Deviation		2.02	Standard Deviation		6.88
	Coefficient of Variation		1.875	Coefficient of Variation		0.954
	Maximum		12.8	Maximum		41.4

Notes:

Database for original SMV Application submitted Nov 2010 covered 2/19/08 to 8/12/10

USEPA Method 1631E was used for all Hg analysis; all data presented met QA/QC requirements and are deemed valid unless noted otherwise.

"---" indicates no sample was collected or data was invalid.

"J" indicates that at least one (or both) sample results used to calculate the average was an estimated value between the reporting limit (0.5 ng/L) and method detection limit (0.12 ng/L).

"B" indicates that the method blank had a mercury detection between the detection limit (0.12 ng/L) and the reporting limit (0.50 ng/L). Blank criteria was met (greater of: <0.5 ng/L or up to 1/5 the amount in associated samples).

"E1" indicates that an associated field or equipment blank had a mercury detection between the detection limit (0.12 ng/L) and the reporting limit (0.50 ng/L). Blank criteria was met (whichever is greater: <0.5 ng/L or up to 1/5 the amount in associated

"E2" indicates that an associated field or equipment blank that was technically acceptable, but it should be noted that the amount detected in the blank was greater than 1/5 the amount in associated samples.

"L" indicates that the method detection limit and reporting limits were elevated due to sample dilution.

"*" Indicates sample was rerun due to data quality issues. The results reported are from the re-analysis. Due the large relative percent difference between sample and duplicate, the samples for 1/14/10 and 4/19/10 and were re-analyzed. The 4/13/11 sample was rerun due to MS/MSD failure of original sample analysis.

** Outfall 001 was replaced by Outfall 005 in August 2010

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL INFORMATION FORM

(TO BE SUBMITTED WITH FORMS 2C, 2D AND 2E)

(Replaces EPA General Form 1)

Revised 4/28/97

1. Name of Facility: BP Products North America Inc. - Whiting Business Unit

2. Facility Contact:

Name: Rose Herrera

Address: 2815 Indianapolis Blvd

City or Town: Whiting State: IN Zip Code: 46394

Telephone: Work: (219) 473-3393

3. Certified Operator

Name: Barry L. Cook

Certification #: 14407 Classification: D

Address: 2815 Indianapolis Blvd

City or Town: Whiting State: IN Zip Code: 46394

Telephone: Work: (219) 473-3248 Alt. Work: (219) 473-5298

4. Facility Mailing Address

Street or P.O. Box: 2815 Indianapolis Blvd

City or Town: Whiting State: IN Zip Code: 46394

5. Facility Location

Street, Route No. or Other Specific Identifier: 2815 Indianapolis Blvd; Whiting, IN 46394

6. Type of Permit Action:

New ☐ Renewal ☒ Modification ☐

7. EPA I.D. Number: IND000810861

8. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the state? (Form 2B)

Yes ☐ No ☒ Form Attached ☐

9. Is this a facility which currently results in discharges to waters of the state other than described in 8?

(Form 2C-Process Wastewater or Form 2E-Nonprocess Wastewater)

Yes ☒ No ☐ Form Attached 2C

10. Is this a proposed facility (other than described in 8) which will result in a discharge to waters of the state?

Yes ☐ No ☒ Form Attached ☐

11. SIC Codes (4-digit, in order of priority)

First: 2911 Specify: Petroleum Refinery

Second: 2951 Specify: Asphalt and Paving Mixtures and Blocks

Third: Specify:

Fourth: Specify:

12. Existing Environmental Permits (Identification #)

NPDES (Discharges to Surface Waters): IN0000108

UIC (Underground Injection of Fluids): N/A

RCRA (Hazardous Wastes): N/A

PSD (Air Emissions from Proposed Sources): See Attachment 1

Other: Local Air Permits Specify: See Attachment 1

Other: Specify:

13. Nature of Business (Provide a Brief Description)

The Whiting Refinery is a Class B Petroleum Refinery which receives crude oil by pipeline and refines it into a variety of products including gasoline, heating fuel, jet fuel, diesel, asphalt and coke. Products may be stored prior to shipment by truck, barge or pipeline. This facility employs approximately 1,850 people and may process up to 420,000 barrels per day after completion of the Whiting Refinery Modernization Project (WRMP).

14. Map See Attachment 2

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluid underground. Include all springs, rivers and other surface water bodies in the map area.

15. Signature Block:

This application must be signed by a person in responsible charge to be valid. This signature attests to the following:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations".

Nick Spencer

Whiting Business Unit Leader

(Printed Name)

(Title)

(Signature)

(Date Signed)

Return Completed Application and Associated Materials to:

Indiana Department of Environmental Management
Office of Water Management - NPDES Permits Section
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

ATTACHMENT 1

BP Products North America Inc. – Whiting Business Unit
Existing Environmental Permits

Air

Indiana Department of Environmental Management (IDEM)

Operating Permit

Title V Operating Permit: T089-6741-000453

Significant Permit Modification: SPM 089-25488-00453 (issued June 16, 2008)

Construction Permits

Whiting Refinery Modernization Project: MSM 089-25454-00453 (issued May 1, 2008)

MACT II Compliance Project: MSM 089-28934-00453 (issued April 4, 2011)

ATTACHMENT 2

Refinery Area Site Map Depicting Elevation, Facility Boundaries, and Receiving Water

